REMARKS

Claims 1-13 and 30-54 are pending in the above-captioned patent application after this amendment. Claims 1-38 have been rejected. The applicant respectfully traverses the rejection of claims 1-7 and 13. Claims 8-12 and 35-38 have been amended, claims 14-29 have been canceled without prejudice, and claims 39-54 have been added for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office pursuant to 65 Fed. Reg. 54603 (September 8, 2000), even though the Applicants believe that the previously pending claims were allowable.

Support for the amendments to the claims and for the new claims can be found throughout the originally filed application, including the originally filed claims, the drawings and the specification. More specifically, support for the amendments to claims 8-12 and 35-38 and for the new claims can be found at least in Figures 1A-5, in claims 1-7 and 12, and in the specification at page 5, lines 16-22, at page 10, lines 20-31, and at page 11, line 8 through page 16, line 12.

No new matter is believed to have been added by this amendment. Consideration of the pending application is respectfully requested.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 8-11, 14-21, 23 and 35-38 are rejected under 35 U.S.C. § 112, second paragraph, "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term 'approximately' ... is a relative term which renders the claim indefinite." As provided above, claims 14-21 and 23 have been canceled without prejudice. Therefore the rejection of claims 14-21 and 23 is believed to be moot. Further, claims 8-11 and 35-38 have been amended. The amended claims do not include the term "approximately", and therefore, the rejection of claims 8-11 and 35-38 under 35 U.S.C. § 112, second paragraph, is not believed to be supported by the language of these amended claims.

Rejections Under 35 U.S.C. § 102

Claims 1, 5-7, 13, 30 and 32-34 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,666,538 to DeNicola. The Applicants respectfully traverse the rejection of claims 1, 5-7, 13, 30 and 32-34 by the Patent Office on the grounds that the cited reference does not teach or suggest the features of the rejected claims, as set forth below.

The Patent Office states in its rejection that DeNicola "teaches that at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives since he teaches that each disk is controlled independently of the other disks. In other words, at any given point in time, each disk can be spun up (active) or spun down (inactive), regardless of the state of the other disks in the system ...." The Applicants respectfully submit that the analysis by the Patent Office of DeNicola is not accurate, for the reasons which follow.

DeNicola is directed toward a network 100 that manages data transactions between a network server 110 and a plurality of user terminals 120. (Col. 4, lines 38-40). However, DeNicola appears to specifically manage power consumption during access of data from the network server 110 (read operations), but does not disclose management of power consumption during transfer of information to the network server 110 (write operations).

DeNicola provides that "data accesses are made to the disk drives 240 via the data line 238. During data accesses to the disk drive 240, the disks 215 are physically spinning under the control of the disk drive motors 230. As disks 215 spin, magnetic media rotates past a read/write head (not shown), which allows the read/write head to read data stored within the magnetic media in quick succession." (Col. 6, lines 6-24; Emphasis added). Although DeNicola discusses counting read and write activity to determine the timing of spinning up or spinning down disk drives, DeNicola does not provide that spinning down of disk drives occurs during write operations between the user terminals 120 and the network server 110.

More specifically, DeNicola refers to a "small disk drive 242 separate from the other disks in the disk subsystem 245. The small disk drive 242 primarily contains data

which are regularly accessed by the operating system, while the other disks in the disk subsystem 245 store data which are not accessed by the operating system during down-time .... Thus, only the small disk drive 242 is continuously spun-up, while the other disk drives are allowed to spin down at the designated intervals. Thus, the disk drives which are not accessed by the operating system can be spun-down to provide additional energy savings." (Col. 13, lines 8-19; Emphasis added).

In contrast to DeNicola, claim 1 of the present application is directed toward a "storage system that stores data from a host system, the storage system comprising: a housing; a plurality of disk drives positioned within the housing; and a controller that controls the disk drives, wherein at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives." These features are not taught or suggested by DeNicola. Therefore, the rejection of claim 1 under 35 U.S.C. § 102(b) is unsupported by DeNicola. Further, because claims 5-7 and 13 depend directly or indirectly from claim 1, a rejection of these claims under 35 U.S.C. § 102(b) is also unsupported by DeNicola.

Claim 30 is also believed to be allowable in view of DeNicola. Claim 30 is directed toward a "method for storing data from a host system, the method comprising the steps of: providing a plurality of disk drives positioned within a housing; and controlling the disk drives so that at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives." These steps are not taught or suggested by DeNicola. Therefore, amended claim 30 is believed to be allowable. Because claims 32-34 depend from claim 30, they are likewise believed to be allowable.

Accordingly, the rejection of claims 1, 5-7, 13, 30 and 32-34 should be withdrawn, and these claims should be allowed.

Rejections Under 35 U.S.C. § 103

Claims 2-4, 8-12, 14-29 and 35-38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over DeNicola. As provided above, claims 14-29 have been canceled without prejudice. Therefore the rejection of claims 14-29 is believed to be moot. The Applicants respectfully traverse the rejection under 35 U.S.C. § 103(a) of claims 2-4, 8-12

and 35-38 on the grounds that DeNicola does not teach or suggest the features of these claims. As previously provided, DeNicola does not teach or suggest reducing power consumption of the network server 110 during a write operation.

As provided above, the rejection of claim 1 is believed to be unsupported by DeNicola, and claim 1 is believed to be allowable. Because claims 2-4 and 8-12 depend directly or indirectly from claim 1, a rejection of these claims is likewise believed to be unsupported, and should therefore also be allowable. Further, claim 30 is believed to be allowable as provided above. Because claims 35-38 depend from claim 30, they are also believed to be allowable.

Accordingly, the Applicants respectfully submit that the rejection of claims 2-4, 8-12 and 35-38 should be withdrawn and these claims should be allowed.

New Claims

Claims 39-54 have been added by this amendment. Claims 39-54 are of a slightly different scope than the previously pending claims. However, in view of the cited reference, claims 39-54 are believed to be allowable. As provided above, claim 1 is believed to be allowable. Because claims 39-40 depend from claim 1, they are also believed to be allowable.

In addition to the description of DeNicola provided above, DeNicola provides that the disk drives of the network server 110 are either in one of two different states. First, the disk drives can be in a spun-down state during which the disks are not rotating. Alternatively, the disk drives can be in a spun-up state during which the data from the disk drives is accessed. DeNicola does not teach or suggest that the disk drives can be in an idle state during which the disks are spun-up but no data transfer is occurring between a host system and the disk drive. It logically follows that DeNicola does not teach another disk drive being in a different mode along with the "idle" disk drive described above.

In addition, DeNicola teaches that the determination of which disk drives will be spun down at what times is made based on historical data including histograms showing the number of accesses to the network server 110 over time. On this basis, the network

administrator selects various time intervals to spin-down the disk drives. (See Abstract; Col. 6, line 37 through Col. 9, line 51; and Figures 4-5). DeNicola does not teach or suggest that the determination of whether disk drives are spun-up or spun-down is made based on the temperature of any the disk drives, particularly the disk drives that are in a write mode.

In contrast to DeNicola, claim 41 is directed toward a storage system that requires "a housing; a plurality of disk drives positioned within the housing including a first disk drive having a rotatable first storage disk, and a second disk drive having a rotatable second storage disk; and a controller that controls the disk drives so that the first disk drive is in a first mode wherein the first storage disk rotates without data being transferred from the host system to the first storage disk, while the second disk drive is in a second mode that is different than the first mode." These features are not taught or suggested by DeNicola. Thus, claim 41 is believed to be allowable. Because claims 42-44 depend directly or indirectly from claim 41, they are likewise believed to be allowable.

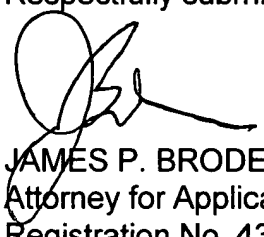
New claim 45 is directed toward a storage system that requires "a housing; a plurality of disk drives positioned within the housing including a first subset of at least two disk drives and a second subset of at least two disk drives, each disk drive of the first subset including a rotatable first storage disk, each disk drive of the second subset including a rotatable second storage disk, each disk drive in the first subset being in a write mode wherein data is transferred between the host system and the first subset of disk drives, each disk drive in the second subset being in a stand-by mode wherein each of the second storage disks is not rotating; and a controller that controls the number of disk drives that are in one of the write mode and the stand-by mode based upon the temperature of the disk drives in the write mode." These features are not taught or suggested by DeNicola. Thus, claim 45 is believed to be allowable. Because claims 46-54 depend directly or indirectly from claim 45, they are likewise believed to be allowable.

Conclusion

In conclusion, Applicants respectfully assert that claims 1-13 and 30-54 are allowable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-672-0454 for any reason that would advance the instant application to issue.

Dated this the 17th day of August, 2004.

Respectfully submitted,



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